



A.D. 1813 . . . . . N<sup>o</sup> 3763.

S P E C I F I C A T I O N

OF

ISAAC WILLSON.

STOVE GRATES.

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,  
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1854.







A.D. 1813 . . . . . N° 3763.

Stove Grates.

WILLSON'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ISAAC WILLSON, of the City of Bath, Gentleman, send greeting.

**WHEREAS** His most Excellent Majesty King George the Third, did, by His Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Twenty-ninth day of November in the fifty-third year of His reign, give and grant unto me, the said Isaac Wilson, my exors, admors, and assigns, His especial licence, full power, and sole privilege and authority, that I, the said Isaac Wilson, my exors, admors, and assigns, should and lawfully might, during the term of years therein mentioned, make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, my Invention of "**CERTAIN IMPROVEMENTS UPON THE STOVE GRATES TO PREVENT SMOKY ROOMS, AND FOR OBTAINING AN INCREASED HEAT FROM THE SAME QUANTITY OF FUEL;**" in which said Letters Patent is contained a proviso that if I, the said Isaac Wilson, shall not particularly describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be enrolled in His Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent and all liberties and advantages whatsoever thereby granted, shall utterly cease, determine, and become void, as in and by the same (relation being thereunto had) may more fully and at large appear.

**NOW KNOW YE**, that in compliance with said proviso, I, that said Isaac Willson, do hereby declare that the nature of my said Invention, and the manuer in which the same is to be performed and to operate, are particularly described



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*Willson's Improvements in Stove Grates, &c.*

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and ascertained in and by the Drawing hereunto annexed, and in and by the following references and descriptions, that is to say:—

That whereas two considerable defects commonly attach to the stove grates now in use for the warming of rooms, and more especially of such as have what is called “an open fire-place,” inasmuch as they do not emit heat proportionate 5 to the quantity of fuel consumed in them, and inasmuch as they frequently fail to rarify the vapor called smoke so sufficiently as to insure a constant and uninterrupted passage thereof up and out of the chimney designed to carry off, by reason of which defects less heat is afforded and the evil commonly called “a smoky chimney” is occasioned. Now the nature of my Invention is to construct 10 a stove having an open fire-place, by which, with the apparatus herein-after described, the evils above mentioned shall be in most cases removed, and in all considerably lessened. I construct a stove grate in the ordinary form, and I employ the materials usually employed for this purpose, but I connect to my stove grate a tube of cast or wrought metal in such a way as to occasion the 15 smoke and heat issuing from the fire to pass into the said tube, and therein descend on one of the sides of the stove grate to the neighbourhood of the said fire again; the tube still continuing is so constructed and directed as to carry the said smoke and heat either behind the back plate against which the fire burns, or below the bottom grate of the fire, or even through the fire itself, to 20 the opposite side of the grate, which is still a continuation of the tube through which the said smoke and heat ascend into the flue of the chimney, and the mouth of this end of the tube being connected and air-tight to the chimney, the smoke and heat finally go off into the air. Neither the proportion nor the form here shewn are necessary to the carrying of my Invention into effect, as they may 25 be varied according to circumstances without differing from the principal essential thereto, which is, that the tube be placed so as to form a communication and clear passage between the room and the chimney in the manner I have described, that it be of sufficient capacity, and constructed so as to admit of a free passage of the smoke, that the ends of this tube be so disposed as to give access and 30 egress thereto in the manner stated, and, finally, that such tube do form the only chanel to convey the smoke into the chimney. The form of the tube may either be either be curvilenear or angular, and its capacity and length may be varied to suit the difference of situations where it may be applied, taking one caution to adopt the dimensions of the different parts to each other. 35 Reference to the Drawings accompanying this Specification:—Figure 1 is a vertical section made parallel with the exterior front of the stove grate. The arrows shew the course of the smoke and heated air beginning to rise at N<sup>o</sup> 1. The arrow N<sup>o</sup> 2 is prevented from going up the chimney in the ordinary way







*Willson's Improvements in Stove Grates, &c.*

by the air-tight moveable cover A, A, and instead thereof is sent down the tube B, C, D, E, F, G, its point just entering the said tube; the arrows continue to shew the direction of the smoke and heated air to where the same escape at N° 5 into the flue of the chimney. But as the arrows N° 3 and 4 shew to have  
 5 gone further down the tube than they ought to have done from a view of this section; in order to explain this, Figure 2 is also a vertical section of that side of the tube B, C, but made at right angles to the section, Figure 1. The arrow N° 2 in this Figure is supposed to be the same as N° 2 in Figure 1. The diagonal line *a, a*, is a partition running nearly to the bottom of the tube, leaving space  
 10 enough for the passage of the smoke and heated air, and as the heated air and smoke must necessarily pass to the bottom of this partition before they can get to the horizontal part of the tube shewn by the dotted lines *b, b, b, b*, and in the direction of the arrow N° 3, the passage of the said smoke and heated air is by this partition considerably lengthened, and is also made by this means to come  
 15 more in contact with the hottest parts of the fire-place, for as there is a similar partition in the opposite side of the tube, the smoke and heated air must touch both sides of the fire grate as well as the back, which back (in the stove grate here described) forms one side of the horizontal tube. Figure 3 is an horizontal section of the stove grate in the line C, D, and through the horizontal tube.  
 20 The letters *b, b*, are the diagonal partitions shewn in Figure 2. Figure 4 shews the general appearance of my stove grate when fitted up and in its place, but part of the wall is supposed to be taken away in order to shew its connection with E, F, which is the chimney. The parts of the arrows that are seen correspond with those of similar numbers in Fig. 1. The letters A, A, also  
 25 correspond with the same letters in Fig. 1, and signify the moveable cover above referred to which prevents the smoke and air from taking the ordinary course up the chimney, and must be large enough to admit a person to pass through for the purpose of sweeping or repairing the chimney. The top part of the stove grate is made air-tight (with good mortar or other proper materials)  
 30 where it connects with the chimney E, F. Added to the advantages already apparent from the foregoing Specification, this grate admits of the most effectual ash draught, which can be regulated at pleasure.

In witness whereof, I, the said Isaac Wilson, have hereunto set my hand and seal, this Twenty-fourth day of May, in the year of our Lord One  
 35 thousand eight hundred and fourteen.

ISAAC WILLSON. (L.S.)



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*Willson's Improvements in Stove Grates, &c.*

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WATTS, Extra.  
AND BE IT REMEMBERED, that on the Twenty-fourth day of May, in the year of our Lord 1814, the aforesaid Isaac Willson came before our said Lord the King in his Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stampd according to the tenor of the 5 Statute made for that purpose.

Inrolled the Twenty-sixth day of May, in the year of our Lord One thousand eight hundred and fourteen.

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LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1854.



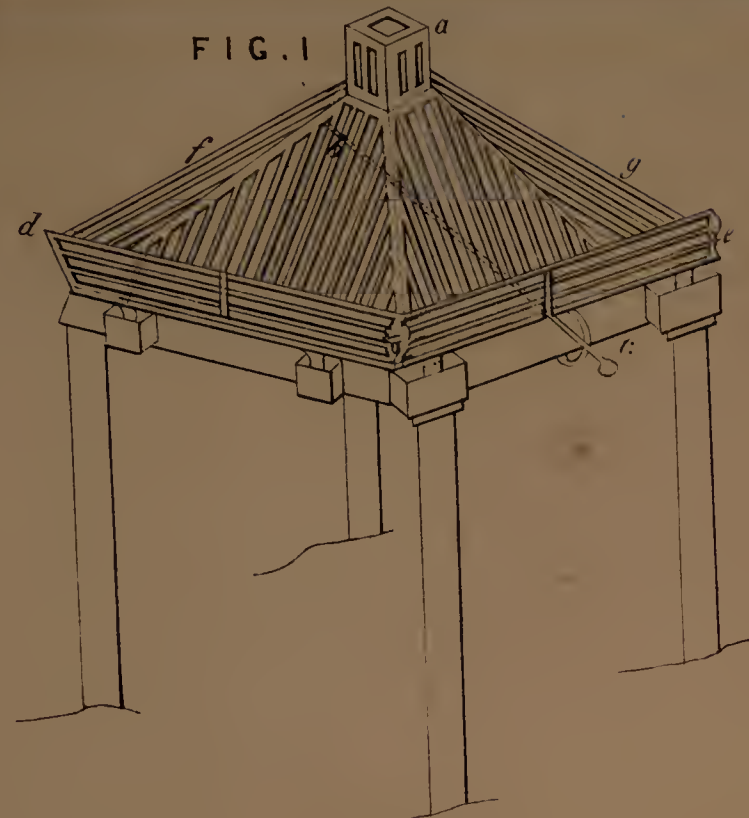


FIG. 2.

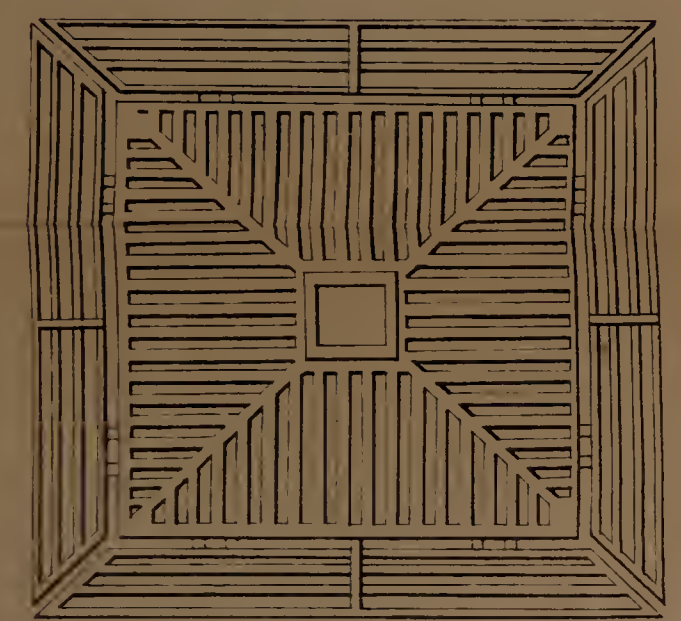


FIG. 4.

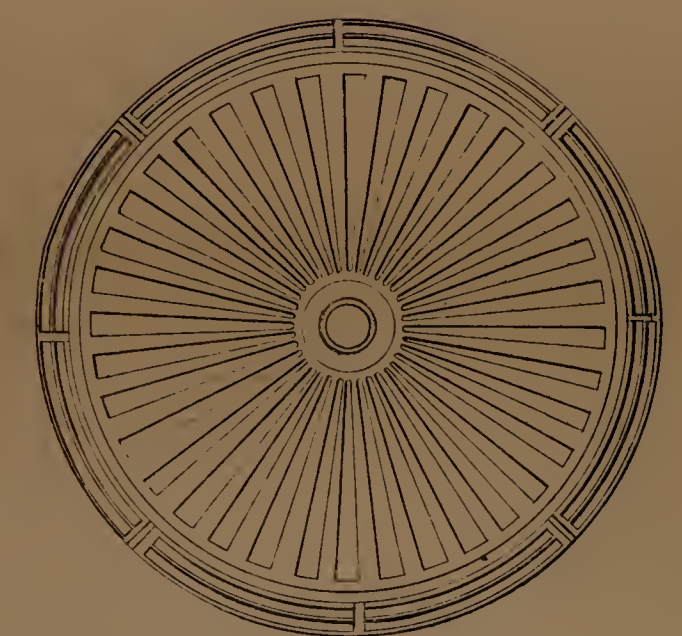


FIG. 5.



FIG. 7.

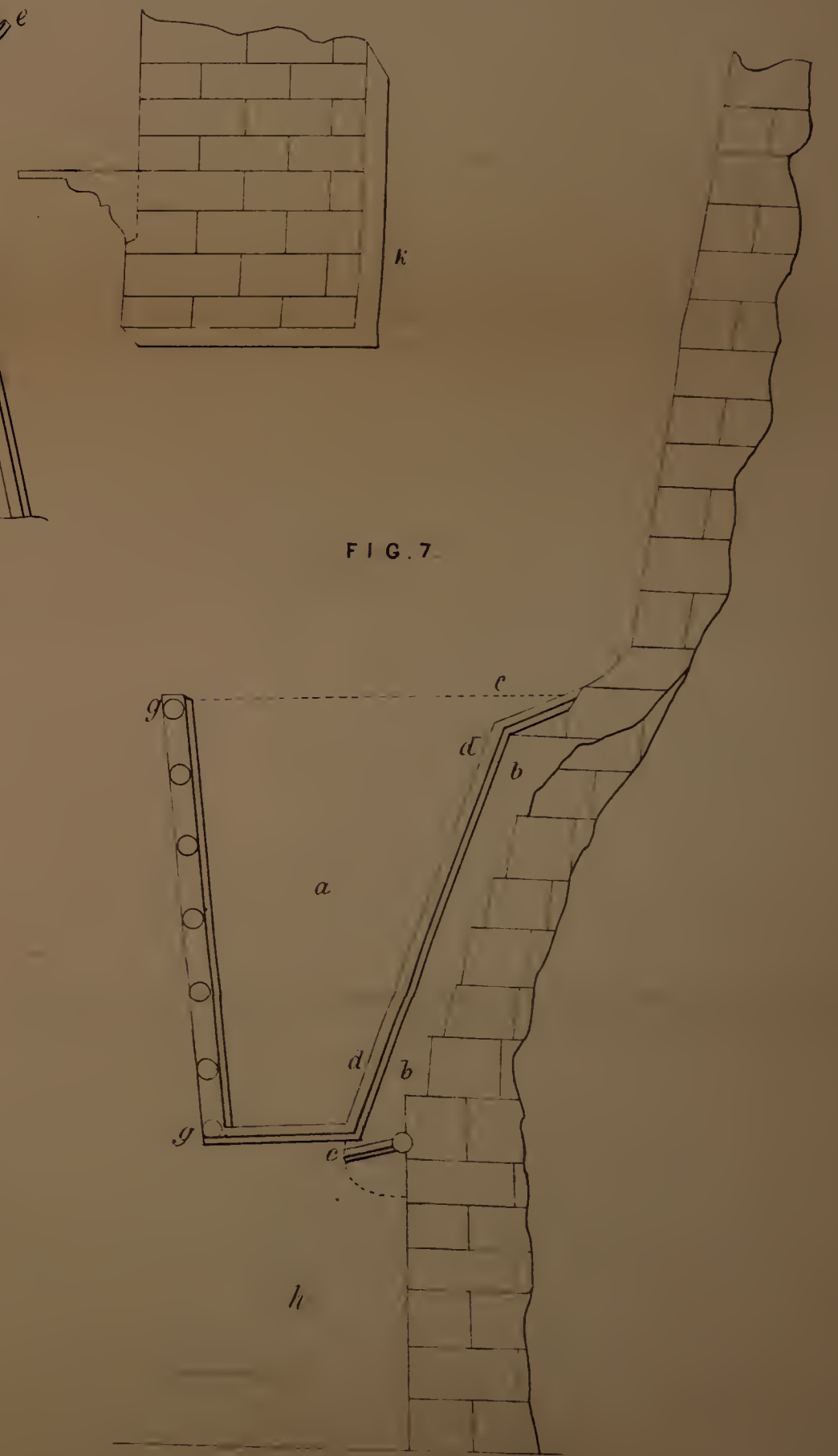


FIG. 3.

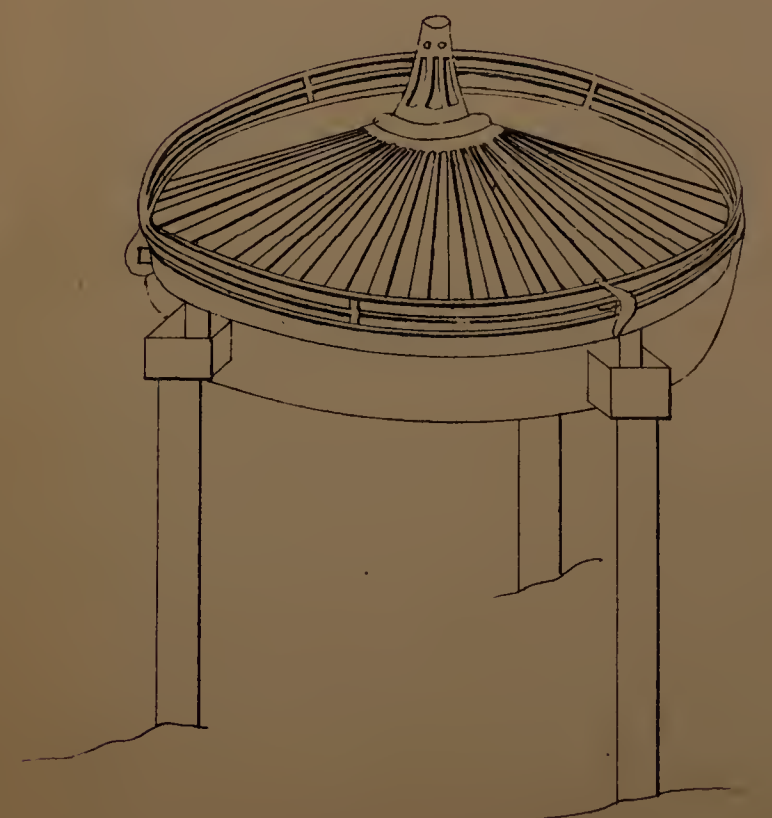
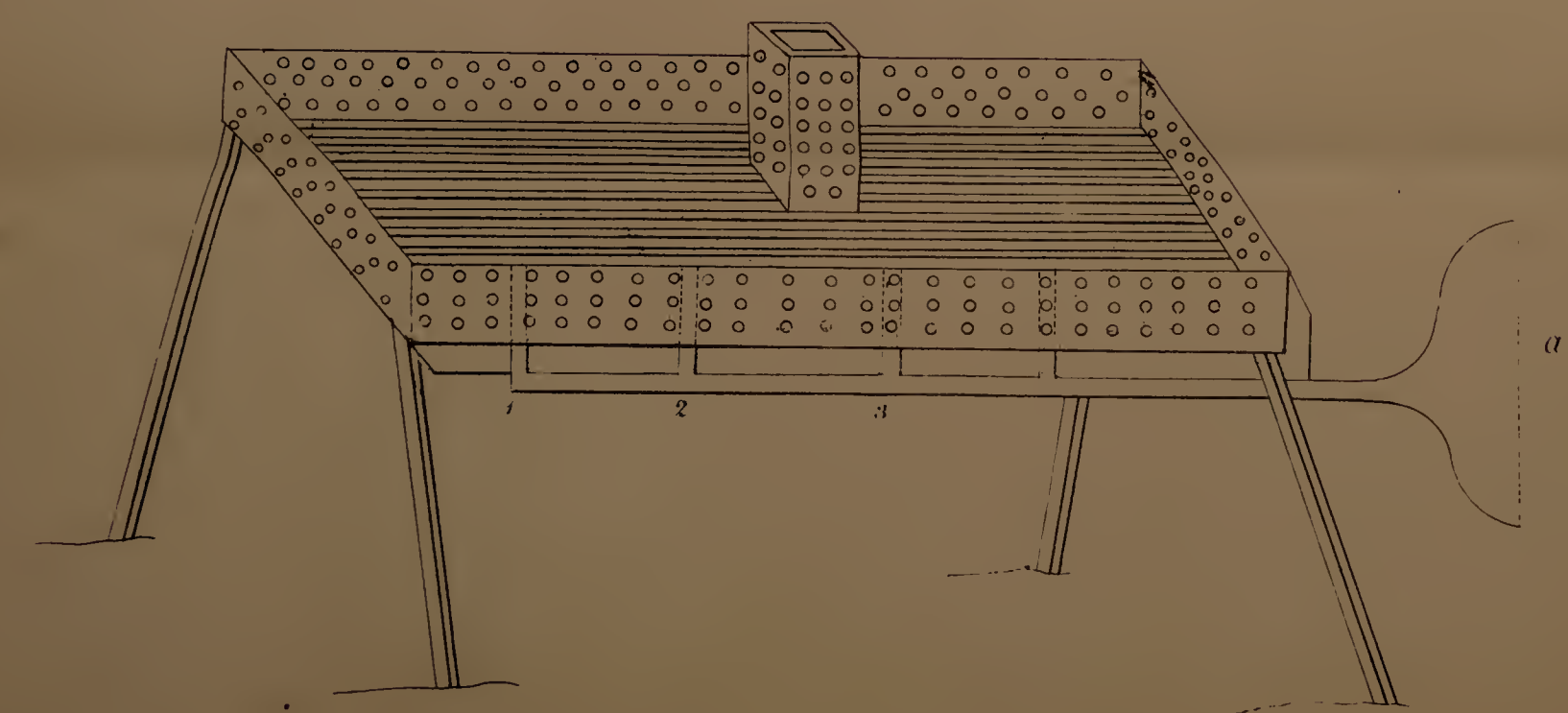


FIG. 6.



The enclosed drawing is partly colored.



